1998 Washington State Population Survey
DATA REPORT

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Forecasting
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THIS REPORT PRESENTS the 1998 Washington State Population Survey (SPS). The SPS was designed to provide a profile of Washington residents between decennial censuses. It collected data on topics such as employment, work experience, income, education, in-migration, health, health insurance, commute pattern, computer ownership, and internet usage, in addition to basic demographics. The 1997 Washington State Legislature funded this survey.

The survey was designed by the Office of Financial Management (OFM) with consultation from a legislative staff advisory group and an extended SPS Network that consisted of more than 80 individuals from research organizations, state agencies, local governments, and higher education institutions. The survey was administered by the Washington State University Social and Economic Sciences Research Center (SESRC). It was designed to utilize the national Current Population Survey (CPS) structure and questions to the greatest extent possible.

A total of 7,279 households from two separate samples (the general population sample and the expanded sample) completed the telephone interview in spring of 1998. The response rate for the general population sample is 59 percent and for the expanded sample is 43 percent. The average interview time was approximately 22 minutes. The interview questions were translated into Spanish, Russian, Korean, and Vietnamese. Bilingual interviewers were hired to conduct interviews with households in which those languages were used.

The survey data underwent initial processing at SESRC. Additional processing was done at OFM. OFM also constructed weights based on its 1998 population estimates and constructed new variables based on existing data.

The SPS is a valuable complement to other reports and data resources concerning the state's population. However, it is not meant to replace any of these other efforts. Its strength lies in the combined information at the household level on a wide range of issues. For example, SPS enables us to assess the geographic distribution of poverty because it contains data on location and income at the household level. However, it does not replace the March CPS, which measures income statewide on a year to year basis, or the OFM estimates of county population. The SPS estimate of poverty will differ somewhat from the CPS estimate because the questions and sampling frame are not identical. The OFM estimates of population by county were used as control totals to convert the raw statistical results of the survey into a recognizable and useful portrayal of the population of Washington State.

Survey Design

Sample Design

POPULATION

The population for this survey consists of all households located within the geographic boundaries of Washington State. Because this was a telephone survey, only the households with telephones were potential subjects. However, the 1990 census shows that less than 4 percent of Washington households did not have telephones. Households on military compounds and other group quarters (such as student dormitories, prisons, and nursing homes) were also excluded from this survey.[1] Since there is no universal list of all the households as defined above from which a random sample can be obtained, SESRC used the random digit dialing (RDD) approach to obtain the required sample. The RDD approach is most commonly used to ensure equal probability of selection for each household with an activated telephone line, listed or not. The RDD sampling frame SESRC used was prepared by the Genesys Sampling Company.

SAMPLING

General Population Sample and Expanded Sample. Two separate samples were drawn for this survey. One was a random sample of all Washington State households (or the general population). The targeted number of completed interviews for the general population was 6,000. The second was an expanded sample of households in which the household head (or the person most knowledgeable about the household's finances) was African American, Asian, Hispanic, or Native American. This expanded sample of minority groups enables use of the data to make inferences about characteristics of all major population groups. When examining the entire state population, responses from the expanded sample will be weighted to represent the incidence of these groups in the general population. For each of the minority groups identified above, 400 interviews were targeted from both the general population sample and the expanded sample.

To control survey costs, SESRC recommended that the expanded sample be drawn only from the census tract regions containing the highest concentrations of each minority group. Since the RDD sample was inclusive of all state regions, it already provided a fair representation for each minority group. SESRC's approach for expanding the sample of these populations was to identify the top five to ten census tracts for each minority group and to obtain a sufficient quantity of telephone numbers to ensure completion of the desired 400 completed interviews for each minority group.

Regional Stratification. The general population sample is stratified into eight geographic regions based on county of primary residence. The target completion for each region was 750. This regional grouping considered the similarities of economic and population characteristics among the 39 counties in Washington State. It was the result of consultation with legislative and other advisory groups for the State Population Survey.

[1] See discussion of limitations.

Western Washington counties were grouped into five regions as follows:

Region 1: Island, San Juan, Skagit, Whatcom
Region 2: Clallam, Cowlitz, Grays Harbor, Jefferson, Klickitat, Lewis, Mason, Pacific, Skamania, Wahkiakum
Region 3: King
Region 4: Kitsap, Pierce, Snohomish, Thurston
Region 5: Clark

Eastern Washington counties were grouped into three regions as follows:

Region 6: Adams, Asotin, Chelan, Columbia, Douglas, Ferry, Garfield, Grant, Kittitas, Lincoln, Okanogan, Pend Oreille, Stevens, Walla Walla, Whitman
Region 7: Spokane
Region 8: Benton, Franklin, Yakima

Questionnaire Design

The initial draft of the questionnaire was based on the March CPS questionnaire. In addition to the CPS questionnaire, the OFM State Population Survey group also collected questions from other sources that were considered important for the subject areas mentioned earlier.

The initial draft was reviewed by a group of more than eighty individuals representing different entities. Their comments were collected and reviewed by OFM. Many of the recommendations were incorporated into the final draft. The final draft was then sent to SESRC which reviewed it again for logic flow and recommended changes accordingly. Further changes were recommended by SESRC after the pretest of 100 cases. These changes were mainly aimed at reducing the interview time.

II. Survey Administration

The survey was administered by SESRC. Before the full-scale fielding, a pretest of 100 cases was conducted. The full-scale fielding started on March 1, 1998. The interview phase was originally planned to last through the month of March. However, difficulties in meeting the expanded sample targets and the addition of three more languages (Russian, Korean, Vietnamese) caused the interview phase to extend into May. The average interview time was approximately 22 minutes.

Advance letter. To obtain full cooperation from the potential respondents, SESRC sent an advance letter to about 4,000 households to announce the survey and explain its purpose. The addresses of these households were generated by matching phone numbers with existing directories.

Interview languages. The interview script was translated into Spanish, Russian, Korean, and Vietnamese. Bilingual interviewers were hired to conduct the interviews with households in which those languages were used. The majority of these language cases were Spanish-speaking households.

Response Rates. A total of 7,279 households completed the interview. Response rates were calculated separately for the general population sample and the expanded sample. The Council of American Survey Research Organizations recommends a calculation method that involves a total account of the sample dispositions and an estimation of eligibles from non-contact cases. According to this calculation method, the response rate for the general population sample is 59 percent and for the expanded sample is 43 percent. A forthcoming technical report will discuss in detail the sample disposition and calculation of the response rates for this survey.

III. The Analysis Data File

The analysis data file consists of 202 variables which were either extracted from the original survey data file or constructed at OFM. In the analysis file, the data are arranged so that each person occupies a separate record. Thus, a household with five members has five records. The file contains 19,923 persons from 7,279 households.

Coding of some of the open-ended questions is still in progress. However, the most important open-ended questions in this survey – questions on industry and occupation – have been coded by specialists from the Labor Market and Economic Analysis Branch of the Employment Security Department.

The analysis data file is available in both SAS format and Excel format. It can be downloaded from the OFM Web-page for SPS. The URL address is http://www.wa.gov/ofm under Population/Data.

IV. Data Tabulations

The data tabulations are presented in two forms, one for categorical and one for continuous variables. The former is basically a frequency analysis and the latter a means analysis.

Each tabulation is weighted and the eight regional values are presented alongside the state value. Also, all tabulations include the variable name, variable label, and the universe for that variable. A subtitle indicates whether the variable is a person variable, a household or respondent-only variable, or a family variable.

A variable with a frequency analysis runs through at least two pages (indicated as Part 1 of 2 and Part 2 of 2). The first page lists the state value and the numbers for Regions 1 through 4. The second page lists the state total again and the numbers for Regions 5 through 8. The number of pages will increase by an increment of two depending on the number of data levels in a variable.

Under the state and region headings, the weighted frequency counts and percentages for each data level are listed. Other information in the frequency tables includes a maximum margin of error at the 95 percent confidence level for the state and for each of the eight regions.

Margin of Error. Caution should be used in interpreting tabulations that contain small values with a relatively large margin of error. Take for example the question: *In which state did you [the respondent] live one year ago, if not in Washington?* The weighted tabulation shows that a state total of 326 people lived in Iowa one year ago. They constituted about 0.6 percent of individuals who were reported to have moved to Washington from another state within the past year. However, the ±7.1 percent margin of error indicates that we are only reasonably confident that the true number of Iowans is somewhere between zero and approximately 700. A common practice to reduce the standard error in such situations is to combine the data levels with fewer categories. In this particular example, instead of individual states, regions can be created.

For each of the means analyses, the numbers for the eight regions and the state total are all listed on one page. This type of table includes the following statistics:

- Total non-missing observations
- Mean
- Minimum
- Maximum
- Median
- Total observations
- Total missing observations
- Sum of weights
- Lower limit of 95 percent confidence interval
- Upper limit of 95 percent confidence interval

It should be pointed out that because of extreme high values in some of the continuous variables, the mean tends to be skewed. In such cases, the median would be a better measure of the central tendency.

V. Limitations

Since this survey was a telephone survey, households without telephones were excluded. This non-coverage is, however, quite small. Statewide, the percent of households without telephones was less than 4 percent according to the 1990 census. While there exists the risk of systematically missing some people in a telephone survey, most researchers do not consider it a to be serious problem.[2] A forthcoming technical report will examine the difference between households with

[2] Folz, D.H. (1996). *Survey Research for Public Administration*. Thousand Oaks, CA: Sage.
Frey, J.H. (1989). *Survey Research by Telephone*. Newbury Park, CA: Sage.

and without telephones and recommend adjustment factors, if necessary, for variables in which non-coverage of non-telephone households presents a concern.

Another limitation common to all surveys is "non-responses." This refers to households that refuse to participate in the survey. The response rate in this survey is 59 percent for the general population sample and 43 percent for the expanded sample. The response rate for the general population is above average for this type of survey. However, the response rate for the expanded sample is lower than desired. As in all surveys, there is a potential distortion in the results if the characteristics of the non-responding households are systematically different than those of the responding households. A common practice to partially compensate for the non-response error is to post-stratify the survey based on known population characteristics,[3] which was done in this project.

An examination of the responses suggests that the degree of distortion due to non-responses is small. OFM examined frequencies, means, and medians of selected key variables in the data set and compared the results with alternative data sources. For example, wage data from the survey was compared with wage information from the state Unemployment Insurance System. In virtually all cases where survey data were compared with alternative data sources, the results were very similar. The issue of non-response and comparisons between survey results and alternative data sources for key variables will be discussed in a forthcoming technical report.

A third limitation in this survey is the difference between the design and the post-stratification with respect to group-quarters populations. While the design called for exclusion of group-quarters populations, in the post-stratification process, the group-quarters population could not be separated from the general population estimates. Thus, the survey data were weighted to the entire state population. This issue will also be addressed in a forthcoming technical report.

[3] Lavrakas, P.J. (1993). *Telephone Survey Methods: Sampling, Selection, and Supervision*. Newbury Park, CA: Sage.

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